

-- This and other objects, features and advantages in accordance with the present invention are provided by a detector for detecting timing in a digital data flow with a predetermined bit-time, and with a coding that provides at a beginning of the bit-time no transition, or a transition of a

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first type, or a transition of a second type, and provides in a middle of the bit-time no transition, or the transition of the first type.

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The detector comprises a first circuit for generating four timing signals each having a period substantially equal to the bit-time. The four timing signals are out of phase with one another by $1/4$ period. A second circuit samples the four timing signals upon each transition of the first type in the data flow, and determines based upon the sampling whether two of the four timing signals forming a pair of reference signals that are out of phase by $1/2$ period are advanced or delayed relative to the timing of the data flow. The second circuit also controls the first circuit to delay or advance the four timing signals based upon the pair of reference signals.

The second circuit comprises a sampling circuit, and a decoding circuit connected to the sampling circuit for decoding the sampled four timing signals. The sampling circuit preferably comprises four bistable elements, each bistable element being associated with a respective timing signal and being clocked by the transitions of the first type in the data flow. The decoding circuit preferably comprises a logic circuit connected to respective outputs of the four bistable elements for determining whether the pair of reference signals is advanced or delayed relative to the timing of the data flow. -

In the Claims:

~~Please cancel Claims 1-5.~~

~~Please add new Claims 6-33.~~